forming a third metal layer adjacent the second dielectric layer and comprising an array of electric field sensing electrodes connected to active circuit portions for generating signals related to a sensed fingerprint;

forming a package surrounding the substrate and having an opening aligned with the array of electric field sensing electrodes; and

forming a first external electrode carried by the package for contact by a finger.

43. A method for controlling operation of a fingerprint sensor of a type comprising a plurality of semiconductor devices adjacent a substrate and defining active circuit portions for generating an output related to a sensed fingerprint, a package surrounding the substrate, and a first external electrode carried by the package for contact by a finger, the method comprising the steps of:

only powering active circuit portions upon sensing finger contact with the first external electrode to thereby conserve power;

grounding active circuit portions upon not sensing finger contact with the first external electrode; and

bleeding a charge from the finger upon initial contact of the finger with the fingerprint package and before switching from grounding of the active circuit portions to powering same.

REMARKS

Applicants thank the Examiner for the thorough examination of the present application and for the indication that Claims 27-29 and 37 are allowed and that Claims 5, 10-12, 15, 18-21, 23-24, 33-34, and 36 would be allowable if rewritten in independent form. Accordingly, Applicants have added new independent Claims 38-43 which respectively correspond to original Claims 5, 12, 15, 18, 33, and 36

written in independent form. Applicants have also amended Claims 1-2, 22, 24, 30-31, 35, and 37 and have canceled Claim 23 to clarify the claimed invention and to expedite the examination of the present application.

In the Official Action, the Examiner rejected Claims 1-3, 9, 22, 26, and 30-32 under 35 U.S.C. 102(e) as being anticipated by Borza 089. Borza `089 describes a driver circuit for a contact imaging array which can be used for sensing fingerprints. The array includes a sensing electrode **21** which connects to a gate **26** of a transistor **30**. Borza `089, however, at least fails to teach or suggest the arrangement of the metal and dielectric layers as set forth in Claims 1 and 30. In other words, Borza `089 fails to teach or suggest a vertically integrated fingerprint sensor having the layers positioned on the substrate and overlying or positioned on respective other layers as claimed. Additionally, independent Claim 22 has been amended to include language from dependent Claim 23 which has been indicated as being allowable by the Examiner if rewritten in independent form. Accordingly, Applicant respectfully submits that independent Claims 1, 22, and 30, and the dependent claims therefrom, are novel and define over Borza `089.

Additionally, in the Official Action, the Examiner rejected Claims 4, 6-8, 13-14, 16-17, and 35 under 35 U.S.C. 103 as being unpatentable over Borza `089 in view of Benenati `558. The Examiner admits that Borza `089 fails to disclose a fingerprint sensing device having an external electrode for contact by a finger and power control means for controlling operation of active circuit portions based upon sensing finger contact with the external electrode. First, Applicants respectfully point out that Benenati `558 describes a crude fingerprint control system used to unlock a door as a replacement for a key. This system uses optical imaging, including large lamps and lenses, and fails to teach or suggest either electric field sensing of fingerprints or

fingerprint sensing integrated circuits. Accordingly, Applicants submit that one skilled in the art would have no motivation to make such an awkward combination. Also, to make such an awkward combination only selective piecemeal portions were chosen while other portions of the disclosure were ignored. In other words, what Benenati `558 teaches as a whole was overlooked in an attempt in hindsight to somehow impermissibly arrive at Applicants' claimed invention. Further, even if such an awkward combination were somehow selectively made, using the technology of Benenati `558 in combination with the technology of Borza `089 would likely destroy the Borza `089 circuit and make it non-function. Finally, neither the patents cited nor the Examiner in the Official Action, even hint at how such a combination can even be made. For example, where and how would the switch **4** of crude system of Benenati `558 and the integrated circuit of Borza `089 connect? Where would the power cut-off or control of the transistors interface? Therefore, Applicant submits that these claims are nonobvious and define over the combination of Borza `089 and Benenati `558.

Second, Benenati `558 fails to teach or suggest an "external electrode" carried by a package for contact with a finger. Instead, Benenati `558 describes a button 29 protruding through a window (see FIG. 3) which contacts a finger. The button is not an "external electrode" as claimed. This also further indicates the awkward and inappropriate nature of such a combination with Borza `089. Accordingly, even if the awkward combination was somehow made, because Benenati `558 fails to teach or suggest an external electrode the combination would not produce the claimed invention.

Third, Benenati `558 uses a switch contacted by a finger to initiate power to the crude system for a door lock as described therein. The Examiner takes the position that this switch is a power control means. Applicants respectfully submit, however, that nothing in either Benenati `558 or Borza

`089 teach or suggest that this switch could somehow be mounted on a substrate of an integrated circuit to control power to active devices positioned on the substrate. Also, as noted above, the power control means fails to be responsive to an "external electrode" as claimed. Further, by way of example of the lack of disclosure in Benenati `558, this patent also fails to teach or suggest that the active devices are grounded responsive to failing to sense the presence of a finger as set forth in dependent Claim 8. Accordingly, Applicants again submit how can such a switch in Benenati `558 be selectively connected to a substrate absent Applicants disclosure. In other words, only impermissible hindsight allows such an awkward combination. Therefore, Applicants respectfully submit that Claims 4, 6-8, 13-14, 16-17, and 35 are nonobvious and define over the combination of Borza `089 and Benenati `558.

Conclusion

In view of the amendments and remarks set forth above, Applicants respectfully submit that Claims 1-22 and 23-43 are novel, nonobvious, and define over the cited art. Therefore, Applicants respectfully submit that the application is in condition for allowance.

Respectfully submitted,

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